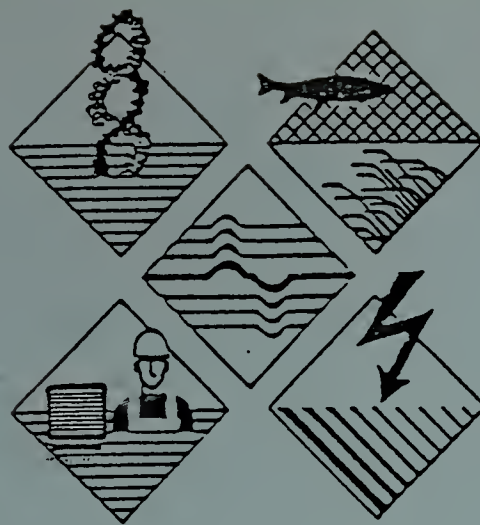
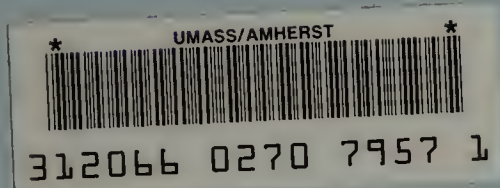


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## MASSACHUSETTS CENTERS OF EXCELLENCE CORPORATION

### CENTER FOR APPLIED TECHNOLOGY

#### AN INTRODUCTION TO THE CENTERS OF EXCELLENCE

The Massachusetts Centers of Excellence Corporation (MCEC) is a quasi-public agency established in 1985 by Governor Dukakis to stimulate economic development by promoting new technologies and new applications of existing technologies through education/ industry/ government partnerships. Five technology centers have been initiated in biotechnology, marine science, polymer science, photovoltaics, and applied manufacturing technology.

MCEC operates with a dual system of boards. Nine directors, three each from academia, industry, and government serve on the Corporation Board. Chaired by the Secretary of Economic Affairs, the MCEC Board sets policy and makes funding decisions. Similarly constituted, the technology boards are charged with developing specific strategies to implement MCEC goals.

The following goals guide the MCEC program:

- \* To aspire to the highest standards of excellence in scientific research and industrial applications in specified areas of emerging technologies that hold substantial promise for the future economic growth of the Commonwealth.
- \* To promote a spirit of cooperation and partnership between academic and research institutions and private industry in order to speed the transformation of scientific discovery and usable technology.





## MASSACHUSETTS CENTERS OF EXCELLENCE CORPORATION

### THE CENTER FOR APPLIED TECHNOLOGY

The Massachusetts Centers of Excellence Corporation approved the establishment of a Center for Applied Technology (CAT) at its March, 1987 meeting. The purpose of the CAT is to accelerate technology development and transfer to manufacturing industries through collaborative efforts among industry, labor, academia, and government. To meet this end, the Center provides small and medium-sized manufacturing companies with access to the kinds of technical services that heretofore only large corporations could afford.

The CAT is building upon Massachusetts' diverse manufacturing base and the rich resources of the Commonwealth's university-based manufacturing science and engineering programs. The CAT also recognizes that the skills present in the workplace are a great untapped resource. The Center's special emphasis is to bring together all parties- workers, management and academics- to implement appropriate innovative technologies.

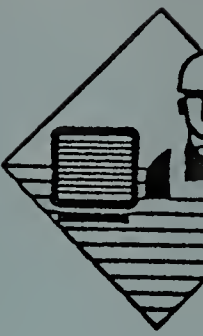
The specific strategy for the CAT is determined by a nine member board of directors composed of representatives from academia, industry, labor and government with special expertise in manufacturing science and technology. The significant labor representation on the CAT Board reflects the importance of labor's role in addressing issues of technology application.

### INDUSTRY FOCUS

In order to ensure CAT's effectiveness, CAT will initially focus on one Massachusetts industry: the metalworking industry. Constituting approximately 1400 Massachusetts firms, metalworking is one of the most important industries affecting the economic health of Massachusetts. Once these projects are underway, CAT will select other important Massachusetts industries, such as apparel, textiles, food processing, and electronic assembly.







## PILOT TECHNICAL ASSISTANCE PROJECTS

At its first meeting in December, 1987, the CAT Board approved as part of its strategy the development of pilot technical assistance programs for those metalworking companies needing help in applying appropriate technology to their workplaces. A unique feature of this effort is that worker participation at each project site is made an integral part of the project design and implementation. To initiate the process, notices to 1200 firms were mailed in January 1988 and, within 2 weeks, over 20 companies had expressed interest. At the same time, the CAT has recruited over 100 qualified individuals interested in providing technical assistance. The CAT is now in the process of matching companies with the appropriate technical consultants.

Three CAT pilot projects are now underway while a fourth is under consideration by the CAT Board of Directors. These pilot projects will be used as models for future projects.

One project involves a young metalworking firm which manufactures stamped steel parts. It is a non-unionized firm employing basically unskilled labor. The firm's management team has agreed to look at changes in job content as part of an upgrading of their parts tracking and production control system. The firm has also permitted the Department of Employment Security to perform a job content analysis before and after the project is carried out. This will allow the CAT to evaluate changes in the content of each job that the new system may affect.

Another project involves an established cutting tool firm. In contrast to the first project, this firm is unionized and employs a highly skilled workforce. CAT is providing assistance to a joint union-management committee which will recommend an overall production control and inventory system for the plant. When this phase is completed, the committee will consider changes in the manufacturing process which maximize human input.

CAT has also been coordinating the services of existing state agencies, such as the Department of Employment Security and the Bay State Skills Corporation, with the assistance programs. Thus, CAT also becomes a referral service and network builder.





## SKILLS-BASED DOCUMENTATION AND TECHNICAL ASSISTANCE CENTER

The CAT Board also approved as part of its strategy the issuance of a Request for Proposals (RFP) for the establishment of a Skills-based Documentation and Technical Assistance Center to be located at a Massachusetts university or college.

The Center will collect and disseminate information on "human-centered" criteria in machine design, software design, and workplace automation. These criteria will: 1) enhance worker skill; 2) allow users to interact more creatively with machines/ software; 3) increase/ enhance health and safety; 4) encourage cooperative forms of work organization.

The Documentation Center will maintain an up-to-date information bank and track changes and experiments in skill-based automation in U.S. and foreign manufacturing firms with emphasis on foreign competitors of Massachusetts' traditional industries. The Center will provide information access and active outreach to management, labor, and government groups who may be seeking assistance.

The RFP was sent to all public and private institutions of higher learning in the Commonwealth. The selection is scheduled to be completed by July 1988.

## TECHNICAL RESEARCH PROJECTS

As a third part of its strategy, CAT announced the availability of grants for applied technology research in an RFP issued in June, 1988 to industry, educational institutions, and labor unions. In fulfilling its mandate, CAT is encouraging proposals which: 1) promote cooperation among industry, academia, and labor; 2) enhance workforce skill; 3) enhance production flexibility; 4) promote workforce input in project design and implementation.

In its first grant round, CAT is seeking requests which focus on technical and production problems of the metalworking industry. However, many of the metalworking industry's production needs, such as CAD/ CAM, part cost quoting, or quality control systems, are common to many small and medium sized Massachusetts companies. Hence, the research projects will develop technology applicable to a wide variety of firms.







## INDUSTRY WORKSHOPS

CAT is also sponsoring Industry Workshops designed to bring together members of academia, local labor unions, employees and management for a discussion of a specific industry's problems and how they may be solved.

In February, 1988, CAT invited all Massachusetts metalworking firms and associated labor unions to its first working conference, "The New Partnership: Appropriate Technology and Skilled Human Resources," at Worcester Polytechnic Institute. In one session, a panel composed of employers, technical staff, and union representatives discussed problems they have faced as they try to upgrade their manufacturing base. Other sessions covered strategies for change for the metalworking industry, such as flexible specialization, skills-based automation, and worker training programs.

The second working conference was held in June, 1988 to specifically address issues most important to the state's forging and metal finishing firms. The keynote speaker was Dr. Tomas Martin, the Program Manager of the Federal Republic of Germany's Manufacturing Technology Program who related West Germany's experience with worker involvement programs and the current status of the country's manufacturing technology.

Individual workshops will be held for metal forging, plating, and galvanizing firms. For example, one workshop, jointly presented by CAT and the Department of Environmental Management, presented a technology which reduces waste, reclaims metal, and results in improved worker skills.

## ADDITIONAL ACTIVITIES:

### NATIONAL BUREAU OF STANDARDS REGIONAL MANUFACTURING CENTER

The National Bureau of Standards has notified state technology agencies that they will be issuing, in early summer, 1988, an RFP for the creation of two regional manufacturing centers. The purpose of these centers is to provide an efficient mechanism for the optimal use of existing technology and the transfer of new technology to small and medium sized firms.





CAT is working with the Massachusetts AFL-CIO, educational institutions, and industry in the writing of a grant proposal to the NBS whose final selection is scheduled for Fall, 1988.

## CONCLUSION

CAT plans to accomplish the following:

- 1) Apply appropriate technological innovation to specific manufacturing problems in the workplace;
- 2) Provide technical assistance to small and medium-sized firms, who could not otherwise afford such, in order to enhance their competitiveness and productivity;
- 3) Employ the strengths of the state's existing university-based manufacturing science and engineering programs by combining university talents with the current knowledge base of industry's workforce and management in designing and applying appropriate technologies;
- 4) Increase worker skills and knowledge;
- 5) Assist in the creation of an outreach center and repository for skills-based manufacturing technology.

The CAT is raising some fundamental issues concerning the organization of the workplace. This is a necessary response to the fact that many of our competitors abroad are restructuring their manufacturing companies in favor of an integrated skills-based production system that includes worker involvement in decisionmaking. Like our competitors, CAT is investing in people, the people upon whom productivity depends.

